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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/785,157	02/25/2004	John G. Carman	15740.006	8150

7590 01/04/2007
Mr. Fuller
FENNEMORE CRAIG
Suite 2600
3003 N. Central Avenue
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EXAMINER

ROBINSON, KEITH O NEAL

ART UNIT	PAPER NUMBER
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1638

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/04/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/785,157

Applicant(s)

CARMAN, JOHN G.

Examiner

Keith O. Robinson, Ph.D.

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 October 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) 13, 14, 25 and 26 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12 and 15-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 2/25/2004.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- ☐ Notice of Informal Patent Application ..
- ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant has amended claim 15 to be dependent upon claim 1 (see page 6, of 'Remarks filed October 16, 2006). Thus, group I now include claims 1-12 and 15-24.
2. Applicant's election of group I in the reply filed on October 16, 2006 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).
3. Claims 13, 14, 25 and 26 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on October 16, 2006.
4. Claims 1-12 and 15-24 are under examination.

Claim Rejections - 35 USC § 112, first paragraph – Written Description

5. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.
6. Claims 1-12 and 15-24 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The claims are broadly drawn to a method of producing an apomictic plant from sexual plants comprising selection of a first and second sexual plant from an angiospermous plant species, genus or family, wherein the initiation time of embryo sac formation in the first plant occurs at about the same time as or before megasporogenesis in the second plant relative to the developmental maturity of the nongametophytic ovule and ovary tissue, hybridization of the first and second plant, recovery of seed therefrom, sowing the seed, and selecting hybrid plants that are apomictic.

The specification does not provide a written description of any angiospermous plant species, genus or family wherein the initiation time of embryo sac formation in the first plant occurs at about the same time as or before megasporogenesis in the second plant relative to the developmental maturity of the nongametophytic ovule and ovary tissue in terms of their genetic, morphological and/or physiological characteristics. In addition, there is no description regarding how one would distinguish plants having divergent initiation times of embryo sac formation.

The specification does not provide a written description regarding how one skilled in the art would be able to determine if the first and second sexual plants used in the method are not facultative apomicts. Koltunow et al (Plant Physiol. 108 : 1345-1352, 1995) teach that "[a]pomixis and sexual reproduction are not necessarily mutually exclusive events...[and that] [i]n facultative apomictics...both sexual and apomictic processes can coexist" (see page 1346, 1st column, 2nd paragraph to 2nd column, end of 1st paragraph).

The Federal Circuit has recently clarified the application of the written description requirement. The court stated that a written description of an invention "requires a precise definition, such as by structure, formula, [or] chemical name, of the claimed subject matter sufficient to distinguish it from other materials". *University of California v. Eli Lilly and Co.*, 119 F.3d 1559, 1568; 43 USPQ2d 1398, 1406 (Fed. Cir. 1997). The court also concluded that "naming a type of material generally known to exist, in the absence of knowledge as to what that material consists of, is not description of that material". *Id.* Further, the court held that to adequately describe a claimed genus, Patent Owner must describe a representative number of the species of the claimed genus, and that one of skill in the art should be able to "visualize or recognize the identity of the members of the genus". *Id.*

See MPEP Section 2163, page 156 of Chapter 2100 of the August 2001 version, column 2, bottom paragraph, where it is taught that

[T]he claimed invention as a whole may not be adequately described where an invention is described solely in terms of a method of its making coupled with its function and there is no described or art-recognized correlation or relationship between the structure of the invention and its function. A biomolecule sequence described only by a functional characteristic, without any known or disclosed correlation between that function and the structure of the sequence, normally is not a sufficient identifying characteristic for written description purposes, even when accompanied by a method of obtaining the claimed sequence.

Given the failure of the specification to describe the broad genus of plants used in the claimed method, one skilled in the art would not have recognized Applicants to have been in possession of the claimed invention. See the written description guidelines published in *Federal Register*/ Vol. 66, No. 4/ Friday January 4, 2001/ Notices: pp. 1099-1111.

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The MPEP states “[t]o satisfy the written description requirement, a patent specification must describe the claimed invention in sufficient detail that one skilled in the art can reasonably conclude that the inventor had possession of the claimed invention. See, e.g., > *Moba, B.V. v. Diamond Automation, Inc.*, 325 F.3d 1306, 1319, 66 USPQ2d 1429, 1438 (Fed. Cir. 2003); < *Vas-Cath, Inc. v. Mahurkar*, 935 F.2d at 1563, 19 USPQ2d at 1116. However, a showing of possession alone does not cure the lack of a written description. *Enzo Biochem, Inc. v. Gen-Probe, Inc.*, **>323 F.3d 956, 969-70, < 63 USPQ2d 1609, 1617 (Fed. Cir. 2002)”.

See *Vas-Cath Inc. v. Mahurkar* 1991 (CA FC) 19 USPQ2d 1111, 1115, which teaches that the purpose of the written description is for the purpose of warning an innocent purchaser, or other person using a machine, of his infringement of the patent; and at the same time, of taking from the inventor the means of practicing upon the credulity or the fears of other persons, by pretending that his invention is more than what it really is, or different from its ostensible objects, that the patentee is required to distinguish his invention in his specification.

Claim Rejections - 35 USC § 112, first paragraph - Enablement

7. Claims 1-12 and 15-24 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

The claims are broadly drawn to a method of producing an apomictic plant from sexual plants comprising selection of a first and second sexual plant from an angiospermous plant species, genus or family, wherein the initiation time of embryo sac formation in the first plant occurs at about the same time as or before megasporogenesis in the second plant relative to the developmental maturity of the nongametophytic ovule and ovary tissue, hybridization of the first and second plant, recovery of seed therefrom, sowing the seed, and selecting hybrid plants that are apomictic.

In re Wands, 858F.2d 731, 8 USPQ2d 1400 (Fed. Cir. 1988) lists eight considerations for determining whether or not undue experimentation would be necessary to practice an invention. These factors are: the quantity of experimentation necessary, the amount of direction or guidance presented, the presence or absence of working examples of the invention, the nature of the invention, the state of the prior art, the relative skill of those in the art, the predictability or unpredictability of the art, and the breadth of the claims.

The specification does not provide any guidance regarding any angiospermous plant species, genus or family wherein the initiation time of embryo sac formation in the first plant occurs at about the same time as or before megasporogenesis in the second plant relative to the developmental maturity of the nongametophytic ovule and ovary tissue in terms of their genetic, morphological and/or physiological characteristics, thus one skilled in the art would not know how to make and use the claimed invention and it

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would require undue trial and error experimentation for one skilled in the art to make and use the invention.

In addition, there is no guidance regarding how one would distinguish plants having divergent initiation times of embryo sac formation, thus, one skilled in the art would have to screen all possible angiospermous plant species, genus or family to determine times of embryo sac formation as well as make numerous crosses to determine which, if any, of such plants could be used in the claimed invention.

The specification lacks the presence of working examples of the claimed invention. There are no examples of any apomictic plants produced from sexual plants using the claimed method.

The specification does not provide any guidance regarding how one skilled in the art would be able to determine if the first and second sexual plants used in the method are not facultative apomicts. Koltunow et al (Plant Physiol. 108 : 1345-1352, 1995) teach that "[a]pomixis and sexual reproduction are not necessarily mutually exclusive events... [and that] [i]n facultative apomictics... both sexual and apomictic processes can coexist" (see page 1346, 1st column, 2nd paragraph to 2nd column, end of 1st paragraph).

de Wet et al (Caryologia 23: 183-187, 1970) teach that breeding for apomixis by sexual hybridization with a group of species or related groups of species is unpredictable because the resulting plants may be genetically unstable (see page 183, Abstract; page 184, Table 1; and page 184, line 1 to page 186, line 17) and that it is unpredictable to select apomictic plants on the basis of distinct maternal morphological

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types among the progeny of a cross (see page, Table 1; and page 184, line 1 to page 186, line 18).

Bashaw (Apomixis and its application in crop improvement, *In Hybridization of crop plants*, Fehr et al (eds.), pp. 45-63, 1980) teaches that environmental factors may affect the stability of the reproductive process in facultative apomicts (see page 61, section VII) and that the breeding of facultative apomicts poses a special problem because of unpredictable progeny variation (see page 46, second paragraph).

Bates et al (Proceedings of world-wide maize improvement in the 70's and the role of CIMMT, April 22-26 El Batan, Mexico, 7 pp., 1974) teach that *Tripsacum* and *Zea* are related groups of species, but that sexual barriers to wide hybridization between *Zea* spp and *Tripsacum* are genotype specific and include barriers such as hybrid necrosis and pollen cross-incompatibility (see page 5-1B, line 1 to page 5-2B, line 5).

Given the unpredictability of producing apomictic plants, the lack of working examples of the claimed invention, the lack of guidance regarding any angiospermous plant species, genus or family wherein the initiation time of embryo sac formation in the first plant occurs at about the same time as or before megasporogenesis in the second plant relative to the developmental maturity of the nongametophytic ovule and ovary tissue and the breadth of the claims, it would require undue trial and error experimentation for one skilled in the art to make and use the claimed invention.

Double Patenting

8. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory

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obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

9. Claim 1 is rejected on the ground of nonstatutory obviousness-type double

patenting as being unpatentable over claim 14 of U.S. Patent No. 6,750,376. Although the conflicting claims are not identical, they are not patentably distinct from each other because both claim a method of producing an apomictic plant from sexual plants.

Conclusion

10. Claims 2-12 and 15-24 are deemed free of the prior art given the failure of the prior art to teach or suggest a method of producing an apomictic plant from sexual plants.

11. No claims are allowed.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Keith O. Robinson, Ph.D. whose telephone number is 571-272-2918. The examiner can normally be reached on Monday - Friday 7:30 am - 4:00 pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Anne Marie Grunberg can be reached on (571) 272-0975. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

13. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Keith O. Robinson, Ph.D.

December 20, 2006

DAVID H. KRUSE, PH.D.
PRIMARY EXAMINER

A handwritten signature in black ink, appearing to read "David H. Kruse", written over the printed name and title.